INTERNATIONAL BULLETIN
OF PLANT PROTECTION

1936 No. 2

DISCOVERIES AND CURRENT EVENTS *

French West Africa: Cryptogamic Diseases and Phanerogamic Parasites Observed in Guinea †

(1) COFFEE.

Cercospora coffeicola Berk. and Cooke.
Sphaerella coffeicola Cooke.
Gloeosporium coffeanum Del.
An undetermined species of Deuteromycetes.
Cephaleuros virescens Kuntze.
Marasmius scandens Massee.
Loranthus dinklagei Engler.

(2) KOLA.

Cephaleuros virescens Kuntze.
Lasiodiplodia theobromae (Pat.) Griff. and Maubl.
Listrostachys colarum A. Chev.

(3) OIL PALM.

Pestalozzia palmarum Cooke.
Ganoderma applanatum Persoon.

(4) COCONUT.

Pestalozzia palmarum Cooke.

(5) KAPOK.

Colletotrichum sp.

(6) TEA.

Cephaleuros virescens Kuntze.
Loranthus tambermensis Engler and Krauss.

(7) SISAL.

Colletotrichum agaves Cav.

(8) BANANA.

Bacteria.
Marasmius stenophyllus Mont. = *M. semiustus* Berk. and Cooke.
Gloeosporium musarum Cooke and Massee.
Lasiodiplodia theobromae (Pat.) Griff. and Maubl.
Thielaviopsis paradoxa (de Seynes) von Höhnel.
Verticillium sp.
Fusarium sp.
Helminthosporium torulosum (Syd.) Ashby.
Gloeosporium musarum Cooke and Massee.

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* Under this and the next heading the countries are arranged in French alphabetical order.

† Communication from the official correspondent of the Institute, Mr. A. MALLAMAIRE, Colonial Agronomy Ingénieur, Director of the Phytopathological and Entomological Laboratory, Bingerville, Ivory Coast.

(9) CITRUS TREES (ORANGE, MANDARIN, AND LEMON).

Loranthus leonensis Sprague.
L. bangwensis Engler and Krauss.
Angraecum kotschyi Reich.
Cephaleuros virescens Kuntze.

(10) PINEAPPLE.

An undetermined species of Deuteromycetes.

(11) GROUND NUT.

Cercospora personata Ellis.
Corticium rolfsii Curzi.
Virus diseases.

(12) MANIOC.

Cercospora cassavae Ellis and Ev.
Mycosphaerella manihotis (Syd.) Ghesq.
Virus disease.

(13) MAIZE.

Ustilago maydis (DC.) Corda.
Helminthosporium turcicum Pass.
Diplodia macrospora Earle.

(14) RICE.

Ustilaginoidea virens (Cooke) Tak.
Helminthosporium oryzae v. Br. de Haan.

(15) SORGHUM.

Sphacelotheca sorghi (Lk.) El.
Puccinia maydis Bér.
P. purpurea Cooke.

(16) *Tephrosia candida.*

Leptoporus lignosus (Kl.) Heim ex Pat. = *Fomes lignosus* Klotzsch.

(17) *Mucuna utilis.*

Cercospora mucunae Syd.

Argentine Republic: Locust Invasion during the Year 1935 *

During the first fortnight of May, 1935, and earlier than was anticipated, the invasions of South American locust (*Schistocerca paranensis*) began with swarms proceeding from the North of the Republic which entered the country by the province of Salta and, after flying over this zone in a South-Easterly direction and passing over the territory of the Chaco, settled, in the second fortnight of June, in the North of the provinces of Santa Fé and Entre Rios.

In the latter the swarms were increased by others originating from Uruguay and this enormous mass of insects passed, during the month of August, to the South of the province of Santa Fé and the North of the province of Buenos Aires.

In the same month the province of Corrientes was invaded by swarms from Paraguay and Brazil which, after flying over the said province for several days, flew towards the South and South-East to the provinces of Entre Rios and Santa Fé.

* Communication from Dr. JUAN F. TOMASELLO, Chief of the Division of 'Defensa Agrícola', transmitted by the official correspondent of the Institute, Mr. JUAN B. MARCHIONATTO, Director of 'Sanidad Vegetal', Ministry of Agriculture, Buenos Aires.

The invasions, in comparison with previous invasions of the country, were very early so that by the beginning of September a vast cultivated area was already invaded and the greater part of the invasion had come to an end. This had been very considerable at the end of September in the province of Buenos Aires being, greatly superior to that of other years and notable for the rapidity with which it extended towards the North-Easterly part.

The provinces of Córdoba and San Luis were invaded during the first ten days of October.

The first hatchings took place in the province of Santa Fé in the middle of November and, a few days afterwards, in the province of Entre Rios, then in Buenos Aires and, finally, in Córdoba.

With the necessary prevision the methods and measures were applied which were available and which were considered, after wide experience, to be the most efficacious for the control of locusts.

6 809 480 kilograms of adults were destroyed.

390 299 hectares were ploughed in order to collect the eggs.

Finally, the present invasion shows the following characteristics:—

(*a*) The earliness of the invasion;

(*b*) Less than the previous invasion (1934-1935);

(*c*) No great damage has been caused.

At the end of the campaign, in March or April, 1936, a report will be issued describing the invasion in all its aspects.

Eritrea: Locusts *

During the months of November and December, 1935, no locusts have been reported in the Colony.

Mozambique: Locust Movements (*Nomadacris septemfasciata* and *Locusta migratoria migratorioides*) †

Below is given a summary of the observations carried out during the month of October, 1935.

Province of Nyassa. No swarms have been observed.

Province of Zambezia. Several large swarms flew about the Zambese and Chire rivers, entering the district of Quelimane and Tete.

* Communication from the official correspondent of the Institute, Dr. Rolando Guidotti, Chief of the Agricultaral Bureau of Eritrea, transmitted to the Institute by the Government of the Colony.

† Communication from Mr. Julio Gardé Alfaro Cardoso, Chief of the Entomological Section, Lourenço Marques, transmitted to the Institute by the 'Repartição Tecnica de Agricultura' of the Colony.

Province of Sul do Save. Several swarms have been observed in flight in the zones of the rivers Limpopo, Incomati and Maputo. Two or three swarms have been seen in the district of Inhambane.

Conclusion. Locust movements, though less than last year, are now intense, and the swarms are looking for districts where laying will take place during the month of December.

Although at present locusts are flying about in large masses, these swarms are gradually breaking up. It would appear, according to reports, that the number of swarms is great though this is not actually the case as the swarm reported in Chibuto is the same one as passed over Manjacaze and Vila João Belo and was also reported in the circumscription of Bilene.

In the same way, the swarm observed in the region of Manhiça, which flew towards the coast, is the same one as was reported in Magude, and possibly a part of it at Moamba.

The swarm which entered by Catuane from Swaziland is the same as the one which later flew towards Zululand.

It is difficult to follow the flight of a swarm simply by reports which are disjointed. It may be that a swarm passes a locality flying in a certain direction and some hours after the same swarm may pass over another spot with a very different flight. On the other hand, it may fly again over the same locality though flying in another direction. The swarms reported in the district of Lourenço Marques should be four in number.

We are about to enter the period most dangerous for plantations and farmers should be prepared combat the locusts, and should delay sowing until the middle of December.

Southern Rhodesia: Locust Invasion, 1932-1935 *

Monthly Report No. 35. October, 1935.

The locust position during October has shown little change.

The only species reported are of the red species (*Nomadacris septemfasciata*, Serv.)

Swarms have been described as 'Enormous', 'Very large', 'Large', 'Small' and 'Very Small', mostly from the Eastern portion of the Colony.

The following districts are included:— Melsetter, Umtali, Rusapi, Chibi, Victoria, Marandellas, Charter, Gwelo, Sebungwe, Matobo, Nyamandhlovu, Insiza, Plumtree, and Bubi.

From specimens received the breeding coloration is developing, likewise the ovaries in the females.

* Communication from the official correspondent of the Institute, Mr. RUPERT W. JACK F. E. S., Chief Entomologist, Agricultural Laboratory, Department of Agriculture, Salisbury, Southern Rhodesia.

There has as yet been no indication of a southward pre-breeding migration from the Colony.

Extensive damage to crops, gardens and fruit trees has been reported from Melsetter.

No reports of disease or parasites have been received and specimens submitted to this office have been healthy.

Uruguay: Pests and Diseases of Plants *

During the year 1934, the damage caused by crop pests and diseases has been felt to a less degree than in preceeding years, owing to the fact that climatic conditions have been unfavorable to these pests and diseases and that the natural enemies have appeared more abundantly and have exercised a greater control over the development of the pests and also to the fact that the work of destruction of these pests and diseases has been carried out more fully and thoroughly by the farmers themselves.

Below are given the various pests which have been observed in order of their importance and intensity:—

Schistocerca paranensis. Swarms of the South American locust, coming from the Argentine Republic, invaded the country during the month of June and up to the month of November, entering by the western border and penetrating as far as the departments of Artigas, Salto, Paysandú, and Río Negro. It may be said that the department that has suffered the most was Paysandú although the locusts were perseveringly controlled by all possible means and in all stages of development. Among the usual methods put into practice the most efficacious and economical were poisoned baits. The following formula was largely used:—

Bran	100 kgs.
Sodium arsenite (65 % of arsenious anhydride)	2 liters
Molasses	8 »
Water	70 »

Carpocapsa pomonella. The codling moth which has caused so much damage in the past to apple and pear trees, has been successfully controlled by spraying wih Paris green, lead arsenite, etc. This treatment is becoming daily more common on account of its great efficacy and being the only certain way of assuring sound and remunerative harvests.

Aspidiotus perniciosus, Aulacaspis pentagona, Eulecanium persicae, Chrysomphalus aonidum, C. dictyospermi, Saissetia oleae, Chionaspis citri. All these scale insects, and others less common, have been successfully controlled in the greater part of the orchards by contact insecticides (' Rubina ', lime sulphur,

* Communication from the official correspondent of the Institute, Mr. A. Trujillo Peluffo, Chief of the Sección Fomento y Defensa Agrícola, Dirección de Agronomía, Montevideo, Uruguay.

spraying oil, etc.), with the exception of certain Aphididae (*Toxoptera aurantii*, *Anuraphis persicae*, etc.) which have been treated with a solution of extract of tobacco and soap.

The annual distribution of *Novius cardinalis*, *Aphelinus mali* and *Prospaltella berlesei*, that the office of which I am in charge makes every year on application, has contributed most successfully towards the destruction of *Icerya purchasei*, *Aulacaspis pentagona* and *Schizoneura lanigera*.

With regard to the inspection of agricultural products imported into the country, some of the seed potatoes have had to be refused in which certain diseases and pests were evident in abundance.

* * *

The vegetable parasites which have appeared with the greatest intensity in 1934 are as follows:—

Plasmopara viticola. Vine mildew has caused great damage in our vineyards where it has appeared, not only in the usual form, but also attacking the grapes. On account of the intensity of the attack, the ' Defensa Agrícola ' paid special attention to this case, while the ' Sección Consultas ' responded to the numerous requests for information on means of controlling the disease. At the same time leaflets were issued giving information on methods of control and explaining the reason for the intensity of the attack, due no doubt to the excess of rain in winter, lack of very cold weather and faulty methods of treatment.

Gummosis. Following *Pl. viticola* in importance was gummosis of stone fruit trees, the attack being so serious as to merit special attention on the part of the Agronomical Laboratory where investigations where made on everything concerning the disease in order to discover the real cause and the best means of control.

Exoascus deformans. Peach leaf curl developed with considerable intensity though not causing such serious damage as the parasites mentioned above.

Ustilago tritici. Among cryptogamic diseases attacking wheat, the most important was *U. tritici*, which in some cases attacked as much as 30 % of the harvest.

Finally mention must be made of attacks on a small scale by *Gloeosporium ampelophagum* on vine, *Venturia pirina* on pear, and *Stigmatea mespili* on quince.

The treatments used against the above mentioned fungi were those commonly employed by our cultivators also Bordeaux mixture with ammonium chloride according to the formula of Professor Sostegni, experimented with in our country last year for controlling vine mildew with the best results.

LEGISLATIVE AND ADMINISTRATIVE MEASURES

Germany. — A Decree of 19 October, 1935, modifying the Decree of 26 February, 1932, relative to the use of ethylene oxide [see this *Bulletin*, 1935, No. 4, p. 85], establishes that the prohibition to use this product does not apply to the military authorities or the State establishments for scientific research. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. Dezember 1935, Bd. VII, Nr. 10, S. 210).

Germany (Mecklenburg-Schwerin). — By Notification of 16 October, 1935, relative to the official registration of horticultural establishments free from grape phylloxera [*Phylloxera vastatrix*], provided for by Article 9 of the International Convention for grape phylloxera of 3 November, 1881, non-infested horticultural and botanical establishments and nurseries may, on request, be entered in the register which will be kept by the Central Station of Plant Protection at Rostock. (*Amtliche Pflanzenschutsbestimmungen*, Berlin, 1. Dezember 1935, Bd. VII, Nr. 10, S. 210-211).

Germany (Prussia). — By Police Order dated 12 October, 1935, the control of field-voles [*Arvicola*] has been made compulsory in the Province of Westphalia. The local police authorities in agreement with the Central Plant Protection Station will fix the districts where the control should be carried out. They will also arrange the date and the means of control to be employed. The Communes may undertake the control and have it carried out by specialised groups of workers. Persons interested, however, retain the right to undertake the control at their own expense on their own property provided that they make application to do so and that they can prove that they have carried out the control according to the prescribed rules before 1 April of each year. On land divided into workmens' gardens the control should be carried out according to a uniform plan established by the competant police authorities. (*Amtliche Pflanzenschutzbestimmungen*, Berlin, 1. Dezember 1935, Bd. VII, Nr. 10, S. 211).

England and Wales. — By the Importation of Plants (Amendment) Order of 1935, dated 10 December, 1935, for the prevention of the introduction of virus diseases of sugar beet and mangold, the landing in England or Wales from any country other than Scotland, Northern Ireland, the Irish Free State, the Isle of Man or the Channel Islands of any living plant of sugar beet or mangold (of the species *Beta vulgaris* Linn.) is prohibited as from 1 February, 1936 except under and in accordance with the conditions of a licence issued by the Minister of Agriculture and Fisheries or by an Inspector or other autorized officer of the Ministry.

The certificates required under the Importation of Plants Order of 1933 [see this *Bulletin*, 1933, No. 11, pp. 250-251] shall, except in the case of a consignment consisting wholly of potatoes, include a statement to the effect that the

consignment does not contain any plant of sugar beet or mangold. (*Statutory Rules and Orders, 1935, No. 1225. Destructive Insect and Pest, England. The Importation of Plants (Amendment) Order of 1935, dated December 10, 1935.* (*D. I. P. 583*). London, 1935, 2 pp.).

Argentine Republic. — The Decree No. 71.178 of 20 November, 1935, regulates the export of fresh garden produce (onions, garlic, asparagus).

Only healthy, clean, ripe and thoroughly dried produce will be accepted. By healthy is meant produce which is virtually free from insects, cryptogamic diseases or any other damage of physical or mechanical origin which affects its appearance; by clean is meant healthy produce with no extraneous substances adhering to the surface which, though not causing damage, partially or totally spoils the appearance.

Inspection of all garden produce for export will be carried out by the Phytopathological Bureau of Imports and Exports of Plants and Seeds of the ' Dirección de Sanidad Vegetal '; persons interested should conform to the rules established by the said Bureau.

All consignments of garden produce rejected after inspection on account of its sanitary condition or for any other reason will be removed from the neighbourhood of the port within 24 hours after notification and each case should be marked with the stamp ' Plaza '; failing this the consignment will be destroyed at the expense of the persons interested.

The Ministry of Agriculture will declare a province, territory, department, district, etc. to be a region unsuitable for exportation when the sanitary conditions do not give full satisfaction. (*Boletín Oficial de la República Argentina*, Buenos Aires, 25 de noviembre de 1935, año XLIII, núm. 12.425, págs. 913 y 914).

Egypt. — By Decree of 26 October, 1935, the date has been postponed on which should be carried out, for the year 1935, in the provinces of Keneh and Aswan, the operations provided for in Article 1 of the Law No. 20 of 1921, containing measures for the destruction of cotton boll and seed worms. (*Journal Officiel du Gouvernement Egyptien*, [Le Caire], 28 octobre 1935, 62ème année, nº 96, p. 6).

Spain. — By ' Orden ' of 25 November, 1935, directions are given for the locust control. (*Gaceta de Madrid*, 27 noviembre 1935, año CCLXXIV, tomo IV, núm. 331, págs. 1698 a 1700).

*** On 26 November, 1935, the Director General of Agriculture, Forests and Stock-breeding has given supplementary instructions for completing the above ' Orden '. (*Ibid.*, 30 noviembre 1935, núm. 334, pág. 1802).

*** The ' Orden ' of 5 December, 1935, establishes that, as from 1 January, 1936, the Phytopathological Stations of Valladolid, Badajoz and Santander will be abolished. (*Ibid.*, 10 diciembre 1935, núm. 344, pág. 2135).

France. — By Decree of 7 November, 1935 the customs duty on pyrethrum powder [*Chrysanthemum cinerariaefolium*] has been modified. (Ministère de l'Agriculture. Direction de l'Agriculture. *Bulletin de l'Office de Renseignements Agricoles*, Paris, 15 novembre 1935, année 1935, nº 22, p. 478).

*** In the programme of work and research approved by the Minister of Agriculture on 20 December, 1935, which will be carried out in 1936 by the Stations and Laboratories dependent from the ' Direction ' of Agriculture, there are also included numerous questions relative to Plant Pathology, Applied Entomology and Agricultural Zoology. (*Ibid.*, 1er janvier 1936, année 1936, nº 1, p. 19-21).

Italy. — By Ministerial Decree of 6 November, 1935, the Commune of Tufo, in the province of Avellino, has been declared infested with grape phylloxera. (*Gazzetta Ufficiale del Regno d'Italia*, Roma, 16 novembre 1935, anno 76º, n. 267, p. 5404).

*** The Royal Decree-Law No. 2262 of 5 December, 1935, authorises the Ministry of Agriculture and Forests to contribute towards the expenses incurred in the control of ' mal secco ' [*Deuterophoma tracheiphila*] disease of citrus plants in Sicily, also in the reconstitution of citrus plantations destroyed or infected by that disease.

A Ministerial Decree will establish the amounts to be allocated to the persons interested and will fix the conditions under which these allocations will be made.

A credit of 500 000 lire is entered, for this purpose, in the statement of estimated expenditure by the Ministry of Agriculture and Forests for the financial year 1935-1936. (*Ibid.*, 14 gennaio 1936, anno 77º, n. 10, p. 90).

*** By Ministerial Decree of 28 December, 1935, authorisation is given, with determined regulations, to the hunting of wild boars in the provinces of Cuneo, Imperia and Savona in the localities and periods in which they prove to be particularly harmful to agriculture. (*Ibid.*, p. 95).

*** By Ministerial Decree of 23 December, 1935, the communes of Sesta Godano, Maissana, Bolano, La Spezia, Riccò del Golfo di Spezia, Borghetto di Vara, and Framura, in the province of La Spezia, have been declared infested with grape phylloxera [*Phylloxera vastatrix*]. (*Ibid.*, 10 gennaio 1936, n. 7, p. 72).

*** The Ministerial Circular No. 76 of 6 December, 1935, recommends the use of polysulfides of lime for the treatment of cryptogamic diseases of fruit trees, such as, for example, apple and pear scab (*Venturia pirina* and *V. inaequalis*), and peach leaf-curl (*Exoascus deformans*); and also the limiting of the use of copper sulphate or similar products solely to the control of downy mildew of the vine [*Plasmopara viticola*], while endeavouring to reduce the number of treat-

ments and the percentage of cupric products to the strictly indispensible minimum. (Ministero dell'Agricoltura e delle Foreste. *Bollettino Ufficiale*, Roma, 1º gennaio 1936, anno VIII, n. 1, p. 10).

Morocco (French Zone). — By two Decrees of the Director of Waters and Forests, dated 17 December, 1935, it is authorised to destroy wild boars and rabbits respectively in the territory of the annex of civil control of Oulmès (Meknès region) and in a determined zone of the circumscription of civil control of the Hayana (Fez region). (Empire chérifien. Protectorat de la République française au Maroc. *Bulletin Officiel*, Rabat, 27 décembre 1935, XXIVe année, nº 1209, p. 1427).

Netherlands (The). — A Decree of 30 October, 1935, contains measures for the application of different Articles of the Law of 1935 relative to potatoes: restrictions on the cultivation of potato or other plants, with a view to preventing contamination by wart disease [*Synchytrium endobioticum*], importation and transit of potatoes, etc. (*Staatsblad van het Koninkrijk der Nederlanden*, 1935, nº. 634, blz. 1-4).

Portugal. — The Decree-Law No. 25 : 915 of 7 October, 1935, replaces the Decree-Law No. 23 : 939 of 31 May, 1934, establishing the rules and conditions for recruiting, in all agricultural districts of the country, the staff who would give their services for phytopathological inspection when required [see this *Bulletin*, 1934, No. 9, p. 205]. (*Diário do Govêrno*, Lisboa, 7 de octubro de 1935, 1 série, núm. 232, pags. 1449-1450).

Uruguay. — By Resolution No. 1214/935 of 9 October, 1935 it is decided that the Institute of Industrial Chemistry shall devise methods of inspection relating to due control of the qualities and prices of ground sulphur. (*Diario Oficial de la República Oriental del Uruguay*, Montevideo, 16 de octubre de 1935, tomo 121, núm. 8745, pág. 78).

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[*Venturia pirina*, *Plasmopara viticola*].

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[*Botryodiplodia* spp., *Phomopsis* spp., *Phytophthora* spp., *Penicillium* spp., *Oospora* sp., *Colletotrichum gloeosporioides*, *Aspergillus niger*, *Rhizopus nigricans*, *Fusarium lateritium* var. *fructigenum*, etc.].

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[*Laspeyresia pomonella*].

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[Issued also in *Bullettino dell'Agricoltura*, Milano, 1936, anno 70º, n. 2, p. 2. According to the Author treating the seed wheat before sowing, in order to prevent bunt, with a 1 per cent. solution of copper sulphate for 15 minutes is detrimental to germination of the grain, damages the roots of the plantlet and produces a lack of equilibrium between the development of the aerial and subterranean parts of the seedling. The harm resulting from this treatment is greater in case of selected varieties, and particularly to ' Damiano Chiesa ', which are now widely cultivated].

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[With a summary in English. ' Mal secco ' is caused by *Deuterophoma tracheiphila*].

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[*Tetranychus*, *Thrips*, *Chrysomphalus* (*dictyospermi*), *Aspidiotus hederae*, *Lepidosaphes*, *Cryptoblabes gnidiella*, *Prays citri*, *Pseudococcus citri*].

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[Follow in appendix:— Extracts of cyclostyled Report on the present position of *Lixophaga* in the Leeward Islands (21st November to 8th December, 1934), by J. C. Myers. — *Lixophaga diatraeae* against *Diatraea saccharalis*].

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[*Diatraea canella* and *D. saccharalis* in St. Lucia; *D. saccharalis*, *Lachnosterna antiguae*, *Ligyrus tumulosus*, *Exophthalmus esuriens*, *Coccus viridis*, *Pseudococcus citri*, etc. in the Leeward Islands].

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[See the paper by Foëx and Burgevin (this *Bulletin*, 1936, No. 2, p. 38)].

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NOTES

A Laboratory for Biological Control of Pests in Palestine. — The ' Beneficial Insects Breeding Laboratory ' has been inaugurated recently at Petach Tiqvah, Palestine.

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